MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2016 / 2017

PPS 0335 – PROBLEM SOLVING AND PROGRAMMING

(Foundation in Information Technology)

7 OCTOBER 2016
3.00 p.m. - 5.00 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 3 pages (excluding the cover page) with 5 questions only.
2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1 [10 Marks]

a. Give appropriate programming term for the followings.
   i. A generic, step-by-step list of instructions for solving a problem.
   ii. A solution that cannot be reached through a direct step-by-step list of instructions.
   iii. A set of instructions that have been coded into a particular programming language.
   iv. The value of it may change during the instructions are being processed.
   v. A small set of instructions that performs specific task and most of the time will return a value.
   vi. A process to find errors in the program and correct them.

(3 marks)

b. There are 3 ways to control the logic structure of a program. State and briefly explain them.

(3 marks)

c. Identify the type (mathematical, relation or logical) of the following expressions.
   i. a >= 10
   ii. 9 / 4
   iii. 5 MOD 3
   iv. True OR False
   v. x <> 100
   vi. 8.0 * 5.2
   vii. NOT True
   viii. A == B

(4 marks)

QUESTION 2 [10 Marks]

a. Identify the problem in these variable names.
   i. 2_names
   ii. distance/speed
   iii. shipping weight
   iv. char
   v. MIX-UP
   vi. while

(3 marks)

b. Set up a computer equation to calculate the following problems. Use the recommended variables (in bold) and other suitable variables.
   i. 32 times x plus y.
   ii. A machine can produce b bottles in m minutes. How many bottles can be produced in one hour?
   iii. The original price of an item is RM20. After discount, the price is y. How many percent the price decreases?
   iv. A sale person get p% commission from the price of a car sold. How much commission will the sale person earn for selling two cars with the price of RM50, 000 for each car?

(4 marks)

Continued ...

c. Suppose a, b, c and d are integer data types and m and n are real data types. What value is assigned to each of these variables after each statement is executed?
   i. a = 6 + 7 / 2 * 4.5
   ii. b = 8 * 10 / (4 + 2)
   iii. c = (4 + 3 MOD 4) + (5 MOD 2)
   iv. d = (2 > 3) OR (15 > 4) AND NOT(3 == 3)
   v. m = 15.0 / 2.0 + 6
   vi. n = 3.0 / 1.5 + 5 * 1.5

(3 marks)

QUESTION 3 [10 Marks]

Ibrah's Home Computer is a retail company selling home computers. The sales staff works strictly on commission. At the end of the month, each staff's commission is calculated according to the below table that shows the sales commission rates.

Monthly Sales (RM)	Commission Rate
less than 10,000	5%
10,000 – 14,999	10%
15,000 – 17,999	12%
18,000 – 21,999	15%
22,000 or more	16%

At the beginning of the month, each staff is allowed to take up to RM1,500 per month as advanced pay. After the sales commissions are calculated, the gross pay is calculated by subtracting the advanced pay from the sales commission. If the gross pay is positive, the staff will get a check, if the gross pay is negative, the staff must pay the reimbursement.

a. Develop a pseudocode to calculate and print the gross pay received by each sales staff at the end of the month.

(4 marks)

b. Develop a negative logic pseudocode to determine the sales commssion rate based on the monthly sales (only the if/then/else part).

(5 marks)

c. Suggest **TWO (2)** data types can be used in this problem.

(1 mark)

Continued ...

QUESTION 4 [10 Marks]

a. Fatimah works 8 hours per day on Monday, Wednesday and Friday, and 6 hours per day on Tuesday and Thursday. She does not work on Saturday and Sunday. She earns RM324 per week? Develop a PAC chart (example shown below) to find how much she earns in RM per hour.

PAC

Given Data	Required Result
Processing Required	Solution Alternatives

(4 marks)

b. Kefli is asked to write a book. For his work, the publishing company is giving him RM2000 plus 10% royalties per book sold. The retail price of the book is RM32. Develop an IPO chart (example shown below) to calculate and print the total income received by Kefli if 10,000 copies managed to be sold.

IPO

Input	Processing	Module Reference	Output

(6 marks)

QUESTION 5 [10 Marks]

A courier company charges for packages to a certain destination are 0.65 cents for the first 250 grams and 0.10 cents for each additional 100 grams or part thereof. Develop a complete flowchart to determine and print the charges given the weight in kilograms.

(10 marks)

End of Paper